



DOCKET NO.: DRXI-0144

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Jean-Marc DuFour

Application No.: 10/634,335

Filing Date: August 4, 2003

Confirmation No.: 6769

Group Art Unit: 1616

Examiner: Not yet known

**For: NOVEL BIFUNCTIONAL CHELATING COMPOUNDS CONTAINING
HYDROXAMIC ACID RESIDUES**

DATE OF DEPOSIT: *January 22, 2004*

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TYPED NAME: Emma R. Dailey
REGISTRATION NO.: 48,491

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR § 1.56 and in accordance with 37 CFR §§ 1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 CFR § 1.56(b).

- In accordance with § 1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of

the above identified application as set forth in § 1.491, before the mailing date of a first Office Action on the merits of the above-identified application, or before the mailing date of a first Office Action after the filing of request for continued examination under § 1.114, no additional fee is required.

- In accordance with § 1.129(a), this Information Disclosure Statement is being filed in connection with the first or second After Final Submission, therefore:
 - Certification in Accordance with § 1.97(e) is attached; or
 - The fee of \$180.00 as set forth in § 1.17(p) is attached.
- In accordance with § 1.97(c), this Information Disclosure Statement is being filed after the period set forth in § 1.97(b) above but before the mailing date of either a Final Action under § 1.113 or a Notice of Allowance under § 1.311, or before an action that otherwise closes prosecution in the application, therefore:
 - Certification in Accordance with § 1.97(e) is attached;
 - or
 - The fee of \$180.00 as set forth in § 1.17(p) is attached.
- In accordance with § 1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under § 1.113 or a Notice of Allowance under § 1.311 but before, or simultaneously with, the payment of the Issue Fee, therefore included are: Certification in Accordance with § 1.97(e); and the submission fee of \$180.00 as set forth in § 1.17(p).
- Copies of each of the references listed on the attached Form PTO-1449 are enclosed herewith.

Copies of references listed on the attached Form PTO 1449 are not required to be submitted pursuant to the June 30, 2003 recent revisions to 37 CFR § 1.98(a)(2)(i).

EXCEPT THAT:

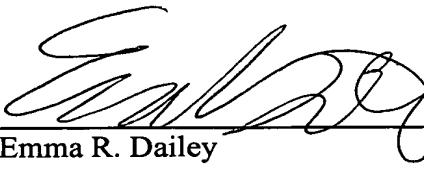
In view of the voluminous nature of references [list as appropriate], and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.

In accordance with § 1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. § 120 have been made in the instant application:

Copies of references **1-39** listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. **09/739,436**, filed **December 18, 2000**.

Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050. This form is submitted in duplicate.

Date: January 22, 2004



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Form PTO-1449 Modified		Docket No. DRXI-0144	Application No. 10/634,335
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)		Applicant Jean-Marc DuFour	
U.S. Department of Commerce Patent and Trademark Office		Filing Date August 4, 2003	Group 1616
		Confirmation No. 6769	

U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
	1	4,256,765	3/17/81	Munakata et al.	424	315
	2	4,741,887	05/03/88	Coleman et al.	423	112
	3	5,539,138	07/23/96	Flanagan et al.	558	17
	4	5,556,939	09/17/96	Flanaga et al.	530	311
	5	5,632,969	05/27/97	Flanagan et al.	424	1.69
.	6	5,733,342	03/31/98	Greindl et al.	8	137
	7	5,756,825	05/26/98	Safavy et al.	560	169

FOREIGN PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Country	Translation	
					YES	NO
	8	92/20227	11/26/92	WO		
	9	93/00082	01/07/93	WO		
	10	94/05627	03/17/94	WO		

EXAMINER	DATE CONSIDERED



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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	11	Altenburger, J.M., et al., "Useful hydroxylamine derivatives for the synthesis of hydroxamic acids," Received in France March 20, 1992 , 5055-5058	
	12	Atherton, E., et al., "Peptide synthesis. Part 10. Use of pentafluorophenyl esters of fluorenlyl methoxycarbonylamino acids in solid phase peptide synthesis," <i>Tetra. Letts.</i> , 1988 , 44(3), 843-857	
	13	Bergeron, R.J., et. al., "Synthesis and biological evaluation of hydroxamate-based iron chelators," <i>J. Medicinal Chem.</i> , 1991 , 34, 3182-3187	
	14	Bergeron, R.J., et al., "The total synthesis of desferrioxamines E and G," <i>Tetrahedron</i> , 1990 , 46(17), 5581-5888	
	15	Bergeron, R.J., et al., "The total synthesis of alcaligin," <i>J. Org. Chem.</i> , 1991 , 56, 5560-5563	
	16	Bergeron, R.J., et al., "The total synthesis of bisucaberin," <i>Tetrahedron</i> , 1989 , 45(16), 4939-4944	
	17	Carpino, L.A., et al., "O-Acylhydroxylamines. I. Synthesis of O-Benzoylhydroxylamine," <i>J. Am. Chem. Soc.</i> , 81 , 1959 , 955-957	
	18	Castro, J.L., et al., "Mitsunobu-like processes with a novel triphenylphosphine-cyclic sulfamide betaine," <i>J. Org. Chem.</i> , 1994 , 59(9), 2289-2291	
	19	Chabert, F., et al., "The design of magnetic resonance contrast agents: new iron (III) dihydroxamate complexes," <i>Tetra. Letts.</i> , 1990 , 31(40), 5729-5732	
	20	Chaudhary, S.K., et al., "4-dimethylaminopyridine: an efficient and selective catalyst for the silylation of alcohols," <i>Pergamon Press Ltd.</i> , 1979 , 20(2), 99-102	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
	21	Gibson, F.S., et al., "Selective removal of an N-BOC protecting group in the presence of a tert-butyl ester and other acid-sensitive groups," <i>J. Org. Chem.</i> , 1994 , <i>59</i> (11), 3216-3218	
	22	Henry, J.R., et al., "Mitsunobu reactions of N-Alkyl and N-Acyl sulfonamides-an efficient route to protected amines," <i>Tetra. Letts.</i> , 1989 , <i>30</i> (42), 5709-5712	
	23	Hou, Z., et al., "Preorganization of ferric alcaligin, Fe ₂ L ₃ . The first structure of a ferric dihydroxamate siderophore," <i>Am. Chem. Soc.</i> , 1996 , <i>118</i> (21), 5148-5149	
.	24	Huffman, W.F., et al., "Nuclear analogues of β-lactam antibiotics. 2. the total synthesis of 8-Oxo-4-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acids," <i>J. Am. Chem. Soc.</i> , 1977 , <i>99</i> .7, 3 pages	
	25	Iida, H., et al., "An efficient, fully stereocontrolled total synthesis of N-Benzoyl-L-daunosamine," <i>J. Org. Chem.</i> , 1986 , <i>51</i> (22), 4245-4249	
	26	Karunaratne, V., et al., "General method for the synthesis of trishydroxamic acids," <i>Tetra. Letts.</i> , 1992 , <i>33</i> (14), 1827-1830	
	27	Katoh, A., et al., "N-hydroxy amides. Part 9. Synthesis and iron (III) complexes of tripodal hydroxamic acids derived from ω-(N-Hydroxyamino)alkanoic acids and tris-(2-aminoethyl)amine," <i>J. Chem. Soc. Perkin Trans.</i> , 1991 , 1839-1842	
	28	Koshti, N.M., et al., "Convenient method for the preparation of some polyhydroxamic acids: Michael addition of amines to acrylohydroxamic acid derivatives," <i>Tetra. Letts.</i> , 1994 , <i>35</i> (29), 5157-5160	
	29	Lee, B.H., et al., "Natural ferric ionophores: Total synthesis of schizokinen, schizokinen A, and arthrobactin," <i>J. Org. Chem.</i> , 1983 , <i>48</i> (1), 24-31	
	30	Miller, M.J., "Hydroxamate approach to the synthesis of β-lactam antibiotics," <i>Acc. Chem. Res.</i> , 1986 , <i>19</i> , 49-56	
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

31	Nikam, S.S., et al., "Synthesis of hydroxamic acids: Pd/BaSO ₄ as a new catalyst for the deprotection of o-benzyl hydroxamates," <i>Tetra. Letts.</i> , 1995 , 36(2), 197-200
32	Rajappa, S., et al., "Hydroxamic acids and their derivatives-III; Preparation of esters of pivalohydroxamic acid and their use in peptide synthesis," <i>Tetrahedron</i> , 1967 , 23, 4805-4809
33	Ramalingam, K., et al., "Syntheses of nitroimidazole substituted 3,3,9,9-tetramethyl-4,8-diazaundecane-2,10-dione dioximes (propylene amine oximes, PnAOs): ligands for technetium-99m complexes with potential for imaging hypoxic tissue," <i>Tetrahedron</i> , 1995 , 51(10), 2875-2894
34	Safavy, A., et al., "Synthesis of N-[tris[2-[[N-(benzyloxy)amino]carbonyl]ethyl]succinamic acid, trisuccin. Hydroxamic acid derivatives as a new class of bifunctional chelating agents," <i>Bioconjugate Chem.</i> , 1993 , 4(3), 194-198
35	Sandler, S.R., et al., "Chapter 12/ Hydroxamic Acids," <i>Org. Functional Group Preparations</i> , 1972 , 3, 406-447
36	Spanevello, R.A., et al., "synthesis of novel, highly potent cyclic-hexapeptide analogs of somatostatin. Potential application of orthogonal protection for affinity chromatography," <i>Tetra. Letts.</i> , 1991 , 32(36), 4675-4678
37	Still, W.C., et al., "Rapid chromatographic technique for preparative separations with moderate resolution," <i>J. Am. Chem. Soc.</i> , 1978 , 43(14), 2923-2925
38	Sun, Y., et al., "Synthesis and characterization of a new macrobicyclic (cryptand) siderophore containing three endocyclic hydroxamate donor groups," <i>Tetrahedron</i> , 1990 , 46(8), 2725-2736
39	Wadsworth, D.H., "Azetidine," <i>Org. Syntheses Coll.</i> , 1988 , Vol. VI, 75-77

EXAMINER**DATE CONSIDERED**